

SEQUENCE LISTING

<110> ASAHIKASEI KOGYO KABUSHIKI KAISHA
 ASAHI MEDICAL CO., LTD.

<120> Separating apparatus of cells and separating method

<130> ASAHI-1

<150> JP 10/159957
 JP 10/163023

<151> 1998-5-25
 1998-5-26

<160> 48

<210> 1
 <211> 5
 <212> PRT
 <213> mouse

<400> 1
 Asp Tyr Val Ile Asn
 1 5

<210>2
 <211> 17
 <212> PRT
 <213> mouse

<400> 2
 Glu Ile Tyr Pro Gly Ser Gly Ser Ala Tyr Tyr Asn Glu Met Phe Lys
 1 5 10 15
 Gly

<210> 3
 <211> 9
 <212> PRT
 <213> mouse

<400> 3
 Arg Gly Thr Gly Thr Gly Phe Ala Tyr
 1 5

<210> 4
 <211> 15
 <212> PRT
 <213> mouse

<400> 4
 Lys Ala Ser Gln Ser Val Asp Tyr Asp Gly Asp Ser Tyr Met Asn
 1 5 10 15

<210> 5
 <211> 7
 <212> PRT
 <213> mouse

<400> 5
 Ala Ala Ser Asn Leu Glu Ser
 1 5

<210> 6
 <211> 9
 <212> PRT
 <213> mouse

<400> 6
 Gln Gln Ser Ser Glu Asp Pro Pro Thr
 1 5

<210> 7
 <211> 330
 <212> DNA
 <213> mouse

<400> 7
 CCT GAG CTG GTG AAG CCT GGG GCT TCA GTG AAG ATG TCC TGC AAG GCT 48
 Pro Glu Leu Val Lys Pro Gly Ala Ser Val Lys Met Ser Cys Lys Ala
 1 5 10 15
 TCT GGA TAC ACA TTC ACT GAC TAT GTT ATA AAC TGG TTG AAC CAG AGA 96
 Ser Gly Tyr Thr Phe Thr Asp Tyr Val Ile Asn Trp Leu Asn Gln Arg
 20 25 30
 ACT GGA CAG GGC CTT GAG TGG ATT GGA GAG ATT TAT CCT GGA AGT GGT 144
 Thr Gly Gln Gly Leu Glu Trp Ile Gly Glu Ile Tyr Pro Gly Ser Gly
 35 40 45
 AGT GCT TAC TAC AAT GAG ATG TTC AAG GGC AAG GCC ACA CTG ACT GCA 192
 Ser Ala Tyr Tyr Asn Glu Met Phe Lys Gly Lys Ala Thr Leu Thr Ala
 50 55 60
 GAC AAA TCC TCC AAC ACA GCC TAC ATG CAG CTC AGC AGC CTG ACA TCT 240
 Asp Lys Ser Ser Asn Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Ser
 65 70 75 80
 GAG GAC TCT GCG GTC TAT TTC TGT GCA AGA CGC GGA ACT GGG ACG GGG 288
 Glu Asp Ser Ala Val Tyr Phe Cys Ala Arg Arg Gly Thr Gly Thr Gly
 85 90 95
 TTT GCT TAC TGG GGC CGA GGG ACT CTG GTC ACT GTC TCT GCA 330
 Phe Ala Tyr Trp Gly Arg Gly Thr Leu Val Thr Val Ser Ala
 100 105 110

<210> 8
 <211> 309
 <212> DNA
 <213> mouse

<400> 8
 GCT TCT TTG GCT GTG TCT CTA GGG CAG AGG GCC ACC ATC TCC TGC AAG 48
 Ala Ser Leu Ala Val Ser Leu Gly Gln Arg Ala Thr Ile Ser Cys Lys
 1 5 10 15
 GCC AGC CAA AGT GTT GAT TAT GAT GGT GAT AGT TAT ATG AAC TGG TAC 96
 Ala Ser Gln Ser Val Asp Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr
 20 25 30
 CAA CAG AAA CCA GGA CAG CCA CCC AAA CTC CTC ATC TAT GCT GCA TCC 144
 Gln Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Ala Ala Ser
 35 40 45
 AAT CTA GAA TCT GGG ATC CCA GCC AGG TTT AGT GGC AGT GGG TCT GGG 192
 Asn Leu Glu Ser Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly
 50 55 60
 ACA GAC TTC ACC CTC AAC ATC CAT CCT GTG GAG GAG GAG GAT GCT GCA 240
 Thr Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp Ala Ala
 65 70 75 80
 ACC TAT TAC TGT CAG CAA AGT AGT GAG GAT CCT CCG ACG TTC GGT GGA 288
 Thr Tyr Tyr Cys Gln Gln Ser Ser Glu Asp Pro Pro Thr Phe Gly Gly
 85 90 95
 GGC ACC AAG CTG GAA ATC AAA 309
 Gly Thr Lys Leu Glu Ile Lys
 100

<210> 9
 <211> 925
 <212> DNA
 <213> mouse

<400> 9
 ATG AAA TAC CTG CTG CCG ACC GCT GCT GCT GGT CTG CTG CTC CTC GCG 48
 Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Ala
 1 5 10 15
 GCC CAG CCG GCC ATG GCC GAC ATT GTG CTG ACC CAA TCT CCA GCT TCT 96
 Ala Gln Pro Ala Met Ala Asp Ile Val Leu Thr Gln Ser Pro Ala Ser
 20 25 30
 TTG GCT GTG TCT CTA GGG CAG AGG GCC ACC ATC TCC TGC AAG GCC AGC 144
 Leu Ala Val Ser Leu Gly Gln Arg Ala Thr Ile Ser Cys Lys Ala Ser
 35 40 45
 CAA AGT GTT GAT TAT GAT GGT GAT AGT TAT ATG AAC TGG TAC CAA CAG 192
 Gln Ser Val Asp Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr Gln Gln
 50 55 60
 AAA CCA GGA CAG CCA CCC AAA CTC CTC ATC TAT GCT GCA TCC AAT CTA 240
 Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Ala Ala Ser Asn Leu
 65 70 75 80

GAA TCT GGG ATC CCA GCC AGG TTT AGT GGC AGT GGG TCT GGG ACA GAC	288
Glu Ser Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp	
85 90 95	
TTC ACC CTC AAC ATC CAT CCT GTG GAG GAG GAG GAT GCT GCA ACC TAT	336
Phe Thr Leu Asn Ile His Pro Val Glu Glu Glu Asp Ala Ala Thr Tyr	
100 105 110	
TAC TGT CAG CAA AGT AGT GAG GAT CCT CCG ACG TTC GGT GGA GGC ACC	384
Tyr Cys Gln Gln Ser Ser Glu Asp Pro Pro Thr Phe Gly Gly Gly Thr	
115 120 125	
AAG CTG GAA ATC AAA GGT GGA GGC GGT TCA GGC GGA GGT GGC TCC GGA	432
Lys Leu Glu Ile Lys Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly	
130 135 140	
GGT GGC GGA TCG CAG GTT CAG CTG CAG CAG TCT GGA CCT GAG CTG GTG	480
Gly Gly Gly Ser Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val	
145 150 155 160	
AAG CCT GGG GCT TCA GTG AAG ATG TCC TGC AAG GCT TCT GGA TAC ACA	528
Lys Pro Gly Ala Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr	
165 170 175	
TTC ACT GAC TAT GTT ATA AAC TGG TTG AAC CAG AGA ACT GGA CAG GGC	576
Phe Thr Asp Tyr Val Ile Asn Trp Leu Asn Gln Arg Thr Gly Gln Gly	
180 185 190	
CTT GAG TGG ATT GGA GAG ATT TAT CCT GGA AGT GGT AGT GCT TAC TAC	624
Leu Glu Trp Ile Gly Glu Ile Tyr Pro Gly Ser Gly Ser Ala Tyr Tyr	
195 200 205	
AAT GAG ATG TTC AAG GGC AAG GCC ACA CTG ACT GCA GAC AAA TCC TCC	672
Asn Glu Met Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser	
210 215 220	
AAC ACA GCC TAC ATG CAG CTC AGC AGC CTG ACA TCT GAG GAC TCT GCG	720
Asn Thr Ala Tyr Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala	
225 230 235 240	
GTC TAT TTC TGT GCA AGA CGC GGA ACT GGG ACG GGG TTT GCT TAC TGG	768
Val Tyr Phe Cys Ala Arg Arg Gly Thr Gly Thr Gly Phe Ala Tyr Trp	
245 250 255	
GGC CGA GGG ACT CTG GTC ACT GTC TCT GCA GCG GCC GCA GAC TAC AAG	816
Gly Arg Gly Thr Leu Val Thr Val Ser Ala Ala Ala Ala Asp Tyr Lys	
260 265 270	
GAT GAC GAT GAC AAA GGC TCG AGC GAG CAG AAG CTG ATC AGC GAA GAG	864
Asp Asp Asp Asp Lys Gly Ser Ser Glu Gln Lys Leu Ile Ser Glu Glu	
275 280 285	
GAT CTG GGC TCG AGG TCG ACC CAC CAT CAT CAT CAC CAC GGG TCG ACC	912
Asp Leu Gly Ser Arg Ser Thr His His His His His His Gly Ser Thr	
290 295 300	
AAA TGA TAA GCT T	925
Lys	
305	

<210> 10
 <211> 925
 <212> DNA

<213> mouse

<400> 10

ATG	AAA	TAC	CTG	CTG	CCG	ACC	GCT	GCT	GCT	GGT	CTG	CTG	CTC	CTC	GCG	48
Met	Lys	Tyr	Leu	Leu	Pro	Thr	Ala	Ala	Ala	Gly	Leu	Leu	Leu	Leu	Ala	
1				5					10					15		
GCC	CAG	CCG	GCC	ATG	GCC	CAG	GTT	CAG	CTG	CAG	CAG	TCT	GGA	CCT	GAG	96
Ala	Gln	Pro	Ala	Met	Ala	Gln	Val	Gln	Leu	Gln	Gln	Ser	Gly	Pro	Glu	
			20					25					30			
CTG	GTG	AAG	CCT	GGG	GCT	TCA	GTG	AAG	ATG	TCC	TGC	AAG	GCT	TCT	GGA	144
Leu	Val	Lys	Pro	Gly	Ala	Ser	Val	Lys	Met	Ser	Cys	Lys	Ala	Ser	Gly	
		35					40					45				
TAC	ACA	TTC	ACT	GAC	TAT	GTT	ATA	AAC	TGG	TTG	AAC	CAG	AGA	ACT	GGA	192
Tyr	Thr	Phe	Thr	Asp	Tyr	Val	Ile	Asn	Trp	Leu	Asn	Gln	Arg	Thr	Gly	
	50					55					60					
CAG	GGC	CTT	GAG	TGG	ATT	GGA	GAG	ATT	TAT	CCT	GGA	AGT	GGT	AGT	GCT	240
Gln	Gly	Leu	Glu	Trp	Ile	Gly	Glu	Ile	Tyr	Pro	Gly	Ser	Gly	Ser	Ala	
65					70					75					80	
TAC	TAC	AAT	GAG	ATG	TTC	AAG	GGC	AAG	GCC	ACA	CTG	ACT	GCA	GAC	AAA	288
Tyr	Tyr	Asn	Glu	Met	Phe	Lys	Gly	Lys	Ala	Thr	Leu	Thr	Ala	Asp	Lys	
				85					90					95		
TCC	TCC	AAC	ACA	GCC	TAC	ATG	CAG	CTC	AGC	AGC	CTG	ACA	TCT	GAG	GAC	336
Ser	Ser	Asn	Thr	Ala	Tyr	Met	Gln	Leu	Ser	Ser	Leu	Thr	Ser	Glu	Asp	
			100					105					110			
TCT	GCG	GTC	TAT	TTC	TGT	GCA	AGA	CGC	GGA	ACT	GGG	ACG	GGG	TTT	GCT	384
Ser	Ala	Val	Tyr	Phe	Cys	Ala	Arg	Arg	Gly	Thr	Gly	Thr	Gly	Phe	Ala	
		115					120					125				
TAC	TGG	GGC	CGA	GGG	ACT	CTG	GTC	ACT	GTC	TCT	GCA	GGT	GGA	GGC	GGT	432
Tyr	Trp	Gly	Arg	Gly	Thr	Leu	Val	Thr	Val	Ser	Ala	Gly	Gly	Gly	Gly	
	130					135					140					
TCA	GGC	GGA	GGT	GGC	TCC	GGA	GGT	GGC	GGA	TCG	GAC	ATT	GTG	CTG	ACC	480
Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Asp	Ile	Val	Leu	Thr	
145					150					155				160		
CAA	TCT	CCA	GCT	TCT	TTG	GCT	GTG	TCT	CTA	GGG	CAG	AGG	GCC	ACC	ATC	528
Gln	Ser	Pro	Ala	Ser	Leu	Ala	Val	Ser	Leu	Gly	Gln	Arg	Ala	Thr	Ile	
			165						170					175		
TCC	TGC	AAG	GCC	AGC	CAA	AGT	GTT	GAT	TAT	GAT	GGT	GAT	AGT	TAT	ATG	576
Ser	Cys	Lys	Ala	Ser	Gln	Ser	Val	Asp	Tyr	Asp	Gly	Asp	Ser	Tyr	Met	
			180					185					190			
AAC	TGG	TAC	CAA	CAG	AAA	CCA	GGA	CAG	CCA	CCC	AAA	CTC	CTC	ATC	TAT	624
Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Pro	Pro	Lys	Leu	Leu	Ile	Tyr	
		195					200					205				
GCT	GCA	TCC	AAT	CTA	GAA	TCT	GGG	ATC	CCA	GCC	AGG	TTT	AGT	GGC	AGT	672
Ala	Ala	Ser	Asn	Leu	Glu	Ser	Gly	Ile	Pro	Ala	Arg	Phe	Ser	Gly	Ser	
	210					215					220					
GGG	TCT	GGG	ACA	GAC	TTC	ACC	CTC	AAC	ATC	CAT	CCT	GTG	GAG	GAG	GAG	720
Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Asn	Ile	His	Pro	Val	Glu	Glu	Glu	
225					230					235					240	
GAT	GCT	GCA	ACC	TAT	TAC	TGT	CAG	CAA	AGT	AGT	GAG	GAT	CCT	CCG	ACG	768

Asp	Ala	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Ser	Ser	Glu	Asp	Pro	Pro	Thr		
				245					250					255			
TTC	GGT	GGA	GGC	ACC	AAG	CTG	GAA	ATC	AAA	GCG	GCC	GCA	GAC	TAC	AAG	816	
Phe	Gly	Gly	Gly	Thr	Lys	Leu	Glu	Ile	Lys	Ala	Ala	Ala	Asp	Tyr	Lys		
				260				265					270				
GAT	GAC	GAT	GAC	AAA	GGC	TCG	AGC	GAG	CAG	AAG	CTG	ATC	AGC	GAA	GAG	864	
Asp	Asp	Asp	Asp	Lys	Gly	Ser	Ser	Glu	Gln	Lys	Leu	Ile	Ser	Glu	Glu		
				275			280					285					
GAT	CTG	GGC	TCG	AGG	TCG	ACC	CAC	CAT	CAT	CAT	CAC	CAC	GGG	TCG	ACC	912	
Asp	Leu	Gly	Ser	Arg	Ser	Thr	His	His	His	His	His	His	Gly	Ser	Thr		
	290					295					300						
AAA	TGA	TAA	GCT	T												925	
Lys																	
305																	

<210> 11
 <211> 28
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

<400> 11
 AAGCTTATGA ACCGGGGAGT CCCTTTTA 28

<210> 12
 <211> 56
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

<400>12
 GCGGCCGCTC ACTTGTCATC GTCGTCCTTG TAGTCTGGCT GCACCGGGGT GGACCA 56

<210> 13
 <211> 34
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

<400> 13
 GGGAATTCAT GRAATGSASC TGGGTWYTYC TCTT 34

<210> 14
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Single strand DNA primer for PCR

 <400> 14
 CCCAAGCTTC CAGGGRCCAR KGGATARACN GRTGG 35

 <210> 15
 <211> 29
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 15
 TGTGCCCTCG AGCTNACNCA RAGYCCNGC 29

 <210> 16
 <211> 28
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 16
 ATGGATACTA GTGGTGCAGC ATCAGCCC 28

 <210> 17
 <211> 33
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 17
 GGGAATTCAT GGAGACAGAC AACTCCTGC TAT 33

 <210> 18
 <211> 21
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 18
 CGTCGGAGGA TCCTCACTAC T 21

 <210> 19
 <211> 27
 <212> DNA

<213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 19
 CAGGATCCGC TGCAGCAGTC TGGACCT 27

 <210> 20
 <211> 27
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 20
 TGGGCCCGTC GTTTTGGCTG CAGAGAC 27

 <210> 21
 <211> 56
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 21
 TCATGAAATA CCTGCTGCCG ACCGCTGCTG CTGGTCTGCT GCTCCTCGCG GCCCAG 56

 <210> 22
 <211> 56
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 22
 TGCGGCCGCA GCCATGGTGT TTGCGGCCAT CGCCGGCTGG GCCGCGAGGA GCAGCA 56

 <210> 23
 <211> 56
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 23
 TGCGGCCGCA GACTACAAGG ATGACGATGA CAAAGGCTCG AGCGAGCAGA AGCTGA 56

 <210> 24
 <211> 57

<212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 24
 GGTGGGTCGA CCTCGAGCCC AGATCCTCTT CGCTGATCAG CTTCTGCTCG CTCGAGC 57

 <210> 25
 <211> 23
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 25
 TGC GGCCGCA GACTACAAGG ATG 23

 <210> 26
 <211> 56
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 26
 TAAGCTTATC ATTTGGTCGA CCCGTGGTGA TGATGATGGT GGGTCGACCT CGAGCC 56

 <210> 27
 <211> 38
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 27
 AGCCGGCCAT GGCCGACATT GTGCTGACCC AATCTCCA 38

 <210> 28
 <211> 58
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 28
 CTCCGAGCC ACCTCCGCCT GAACCGCCTC CACCTTTGAT TTCCAGCTTG GTGCCTCC 58

 <210> 29

<211> 40
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 29
 CTCCGGAGGT GCGGATCGC AGGTTTCAGCT GCAGCAGTCT 40

 <210> 30
 <211> 31
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 30
 TGCGGCCGCT GCAGAGACAG TGACCAGAGT C 31

 <210> 31
 <211> 35
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 31
 AGCCGGCCAT GGCCCAGGTT CAGCTGCAGC AGTCT 35

 <210> 32
 <211> 56
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 32
 CTCCGGAGCC ACCTCCGCCT GAACCGCCTC CACCTGCAGA GACAGTGACC AGAGTC 56

 <210> 33
 <211> 43
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

 <400> 33
 CTCCGGAGGT GCGGATCGG ACATTGTGCT GACCCAATCT CCA 43

<210> 34
 <211> 33
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Single strand DNA primer for PCR

<400> 34
 TGC GGCCGCT TTGATTTC CA GCTTGGTGCC TCC

33

<210> 35
 <211> 118
 <212> PRT
 <213> mouse

<400> 35
 Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
 20 25 30
 Val Ile Asn Trp Leu Asn Gln Arg Thr Gly Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Glu Ile Tyr Pro Gly Ser Gly Ser Ala Tyr Tyr Asn Glu Met Phe
 50 55 60
 Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Asn Thr Ala Tyr
 65 70 75 80
 Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys
 85 90 95
 Ala Arg Arg Gly Thr Gly Thr Gly Phe Ala Tyr Trp Gly Arg Gly Thr
 100 105 110
 Leu Val Thr Val Ser Ala
 115

<210> 36
 <211> 111
 <212> PRT
 <213> mouse

<400> 36
 Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly
 1 5 10 15
 Gln Arg Ala Thr Ile Ser Cys Lys Ala Ser Gln Ser Val Asp Tyr Asp
 20 25 30
 Gly Asp Ser Tyr Met Asn Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
 35 40 45
 Lys Leu Leu Ile Tyr Ala Ala Ser Asn Leu Glu Ser Gly Ile Pro Ala
 50 55 60
 Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Asn Ile His
 65 70 75 80

Pro	Val	Glu	Glu	Glu	Asp	Ala	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Ser	Ser
				85					90					95	
Glu	Asp	Pro	Pro	Thr	Phe	Gly	Gly	Gly	Thr	Lys	Leu	Glu	Ile	Lys	
			100					105					110		

<210> 37
 <211> 354
 <212> DNA
 <213> mouse

<400>	37																
CAG	GTT	CAG	CTG	CAG	CAG	TCT	GGA	CCT	GAG	CTG	GTG	AAG	CCT	GGG	GCT		48
Gln	Val	Gln	Leu	Gln	Gln	Ser	Gly	Pro	Glu	Leu	Val	Lys	Pro	Gly	Ala		
1				5					10					15			
TCA	GTG	AAG	ATG	TCC	TGC	AAG	GCT	TCT	GGA	TAC	ACA	TTC	ACT	GAC	TAT		96
Ser	Val	Lys	Met	Ser	Cys	Lys	Ala	Ser	Gly	Tyr	Thr	Phe	Thr	Asp	Tyr		
			20					25						30			
GTT	ATA	AAC	TGG	TTG	AAC	CAG	AGA	ACT	GGA	CAG	GGC	CTT	GAG	TGG	ATT		144
Val	Ile	Asn	Trp	Leu	Asn	Gln	Arg	Thr	Gly	Gln	Gly	Leu	Glu	Trp	Ile		
		35					40					45					
GGA	GAG	ATT	TAT	CCT	GGA	AGT	GGT	AGT	GCT	TAC	TAC	AAT	GAG	ATG	TTC		192
Gly	Glu	Ile	Tyr	Pro	Gly	Ser	Gly	Ser	Ala	Tyr	Tyr	Asn	Glu	Met	Phe		
		50				55					60						
AAG	GGC	AAG	GCC	ACA	CTG	ACT	GCA	GAC	AAA	TCC	TCC	AAC	ACA	GCC	TAC		240
Lys	Gly	Lys	Ala	Thr	Leu	Thr	Ala	Asp	Lys	Ser	Ser	Asn	Thr	Ala	Tyr		
		65			70					75					80		
ATG	CAG	CTC	AGC	AGC	CTG	ACA	TCT	GAG	GAC	TCT	GCG	GTC	TAT	TTC	TGT		288
Met	Gln	Leu	Ser	Ser	Leu	Thr	Ser	Glu	Asp	Ser	Ala	Val	Tyr	Phe	Cys		
			85						90					95			
GCA	AGA	CGC	GGA	ACT	GGG	ACG	GGG	TTT	GCT	TAC	TGG	GGC	CGA	GGG	ACT		336
Ala	Arg	Arg	Gly	Thr	Gly	Thr	Gly	Phe	Ala	Tyr	Trp	Gly	Arg	Gly	Thr		
			100					105					110				
CTG	GTC	ACT	GTC	TCT	GCA												354
Leu	Val	Thr	Val	Ser	Ala												
			115														

<210> 38
 <211> 333
 <212> DNA
 <213> mouse

<400>	38																
GAC	ATT	GTG	CTG	ACC	CAA	TCT	CCA	GCT	TCT	TTG	GCT	GTG	TCT	CTA	GGG		48
Asp	Ile	Val	Leu	Thr	Gln	Ser	Pro	Ala	Ser	Leu	Ala	Val	Ser	Leu	Gly		
1				5					10					15			
CAG	AGG	GCC	ACC	ATC	TCC	TGC	AAG	GCC	AGC	CAA	AGT	GTT	GAT	TAT	GAT		96
Gln	Arg	Ala	Thr	Ile	Ser	Cys	Lys	Ala	Ser	Gln	Ser	Val	Asp	Tyr	Asp		
			20					25					30				
GGT	GAT	AGT	TAT	ATG	AAC	TGG	TAC	CAA	CAG	AAA	CCA	GGA	CAG	CCA	CCC		144

Gly	Asp	Ser	Tyr	Met	Asn	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Gln	Pro	Pro	
		35					40					45				
AAA	CTC	CTC	ATC	TAT	GCT	GCA	TCC	AAT	CTA	GAA	TCT	GGG	ATC	CCA	GCC	192
Lys	Leu	Leu	Ile	Tyr	Ala	Ala	Ser	Asn	Leu	Glu	Ser	Gly	Ile	Pro	Ala	
	50					55					60					
AGG	TTT	AGT	GGC	AGT	GGG	TCT	GGG	ACA	GAC	TTC	ACC	CTC	AAC	ATC	CAT	240
Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Leu	Asn	Ile	His	
65					70					75					80	
CCT	GTG	GAG	GAG	GAG	GAT	GCT	GCA	ACC	TAT	TAC	TGT	CAG	CAA	AGT	AGT	288
Pro	Val	Glu	Glu	Glu	Asp	Ala	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	Ser	Ser	
				85					90					95		
GAG	GAT	CCT	CCG	ACG	TTC	GGT	GGA	GGC	ACC	AAG	CTG	GAA	ATC	AAA		333
Glu	Asp	Pro	Pro	Thr	Phe	Gly	Gly	Gly	Thr	Lys	Leu	Glu	Ile	Lys		
			100					105					110			
<210>		39														
<211>		351														
<212>		DNA														
<213>		mouse														
<400>		39														
CAG	GTG	CAG	CTG	AAG	CAG	TCA	GGA	CCT	GGC	CTA	GTG	CAG	CCC	TCA	CAG	48
Gln	Val	Gln	Leu	Lys	Gln	Ser	Gly	Pro	Gly	Leu	Val	Gln	Pro	Ser	Gln	
			5						10					15		
AGC	CTG	TCC	TTC	ATC	TGC	ACA	GTC	TCT	GGT	TTC	TCA	TTA	ACT	AGT	CAT	96
Ser	Leu	Ser	Phe	Ile	Cys	Thr	Val	Ser	Gly	Phe	Ser	Leu	Thr	Ser	His	
			20					25					30			
GGT	GTA	CAC	TGG	GTT	CGC	CAG	TCT	CCA	GGA	AAG	GGT	CTG	GAG	TGG	CTG	144
Gly	Val	His	Trp	Val	Arg	Gln	Ser	Pro	Gly	Lys	Gly	Leu	Glu	Trp	Leu	
		35				40						45				
GGA	GTG	ATA	TGG	GGT	GCT	GGA	AGG	ACA	GAC	TAT	AAT	GCA	GCT	TTC	ATA	192
Gly	Val	Ile	Trp	Gly	Ala	Gly	Arg	Thr	Asp	Tyr	Asn	Ala	Ala	Phe	Ile	
	50					55					60					
TCC	AGA	CTG	AGC	ATC	AGC	AGG	GAC	ATT	TCC	AAG	AGC	CAA	GTT	TTC	TTT	240
Ser	Arg	Leu	Ser	Ile	Ser	Arg	Asp	Ile	Ser	Lys	Ser	Gln	Val	Phe	Phe	
65					70					75					80	
AAG	ATG	AAC	AGT	CTG	CAA	GTT	GAT	GAC	ACA	GCC	ATA	TAT	TAC	TGT	GCC	288
Lys	Met	Asn	Ser	Leu	Gln	Val	Asp	Asp	Thr	Ala	Ile	Tyr	Tyr	Cys	Ala	
				85					90					95		
AGA	AAT	AGG	TAC	GAG	AGC	TAC	TTT	GAC	TAC	TGG	GGC	CAA	GGC	ACC	ACT	336
Arg	Asn	Arg	Tyr	Glu	Ser	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Thr	
			100					105					110			
TCC	CTC	ACA	GTC	TCCü												351
Leu	Thr	Val	Ser	Ser												

<400> 40

GAT	GTT	GTG	ATG	ACC	CAA	ACT	CCA	CTC	TCC	CTG	CCT	GTC	AGT	CTT	GGA	48
Asp	Val	Val	Met	Thr	Gln	Thr	Pro	Leu	Ser	Leu	Pro	Val	Ser	Leu	Gly	
			5						10					15		
GAT	CAG	GCC	TCC	ATC	TCT	TGC	AGA	TCT	AGT	CAG	AAC	CTT	GTA	CAC	AGT	96
Asp	Gln	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Asn	Leu	Val	His	Ser	
			20					25					30			
AAT	GGA	AAT	ACC	TAT	TTA	CAT	TGG	TAC	CTG	CAG	AAG	CCA	GGC	CAG	TCT	144
Asn	Gly	Asn	Thr	Tyr	Leu	His	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Gln	Ser	
			35				40					45				
CCA	AAT	CTC	CTG	ATC	TAC	AAA	GTT	TCC	AAC	CGA	TTT	TCT	GGG	GTC	CCA	192
Pro	Asn	Leu	Leu	Ile	Tyr	Lys	Val	Ser	Asn	Arg	Phe	Ser	Gly	Val	Pro	
			50			55					60					
GAC	AGG	TTC	AGT	GGC	AGT	GGA	TCA	GGG	ACA	GAA	TTC	ACA	CTC	AAG	ATC	240
Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Glu	Phe	Thr	Leu	Lys	Ile	
					70					75					80	
AGC	AGA	GTG	GAG	GCT	GAG	GAT	CTG	GGA	GTT	TAT	TTC	TGC	TCT	CAA	AGT	288
Ser	Arg	Val	Glu	Ala	Glu	Asp	Leu	Gly	Val	Tyr	Phe	Cys	Ser	Gln	Ser	
				85					90					95		
ACA	CAT	GTT	CCG	CTC	ACG	TTC	GGT	GCT	GGG	ACC	AAG	GTG	GAG	CTG	AAA	336
Thr	His	Val	Pro	Leu	Thr	Phe	Gly	Ala	Gly	Thr	Lys	Val	Glu	Leu	Lys	
			100					105					110			
CGG																339
Arg																

<210> 41
 <211> 879
 <212> DNA
 <213> mouse

<400> 41

ATG	ACC	ATG	ATT	ACG	CCA	AGC	TTT	GGA	GCC	TTT	TTT	TTG	GAG	ATT	TTC	48
Met	Thr	Met	Ile	Thr	Pro	Ser	Phe	Gly	Ala	Phe	Phe	Leu	Glu	Ile	Phe	
				5					10					15		
AAC	GTG	AAA	AAA	TTA	TTA	TTC	GCA	ATT	CCT	TTA	GTT	GTT	CCT	TTC	TAT	96
Asn	Val	Lys	Lys	Leu	Leu	Phe	Ala	Ile	Pro	Leu	Val	Val	Pro	Phe	Tyr	
				20				25					30			
GCG	GCC	CAG	CCG	GCC	ATG	GCC	CAG	GTG	AAG	CTG	CAG	CAG	TCT	GGA	CCT	144
Ala	Ala	Gln	Pro	Ala	Met	Ala	Gln	Val	Lys	Leu	Gln	Gln	Ser	Gly	Pro	
				35			40					45				
GGC	CTA	GTG	CAG	CCC	TCA	CAG	AGC	CTG	TCC	TTC	ATC	TGC	ACA	GTC	TCT	192
Gly	Leu	Val	Gln	Pro	Ser	Gln	Ser	Leu	Ser	Phe	Ile	Cys	Thr	Val	Ser	
				50			55				60					
GGT	TTC	TCA	TTA	ACT	AGT	CAT	GGT	GTA	CAC	TGG	GTT	CGC	CAG	TCT	CCA	240
Gly	Phe	Ser	Leu	Thr	Ser	His	Gly	Val	His	Trp	Val	Arg	Gln	Ser	Pro	
					70					75					80	
GGA	AAG	GGT	CTG	GAG	TGG	CTG	GGA	GTG	ATA	TGG	GGT	GCT	GGA	AGG	ACA	288
Gly	Lys	Gly	Leu	Glu	Trp	Leu	Gly	Val	Ile	Trp	Gly	Ala	Gly	Arg	Thr	
				85					90					95		

GAC	TAT	AAT	GCA	GCT	TTC	ATA	TCC	AGA	CTG	AGC	ATC	AGC	AGG	GAC	ATT	336
Asp	Tyr	Asn	Ala	Ala	Phe	Ile	Ser	Arg	Leu	Ser	Ile	Ser	Arg	Asp	Ile	
			100					105					110			
TCC	AAG	AGC	CAA	GTT	TTC	TTT	AAG	ATG	AAC	AGT	CTG	CAA	GTT	GAT	GAC	384
Ser	Lys	Ser	Gln	Val	Phe	Phe	Lys	Met	Asn	Ser	Leu	Gln	Val	Asp	Asp	
			115					120					125			
ACA	GCC	ATA	TAT	TAC	TGT	GCC	AGA	AAT	AGG	TAC	GAG	AGC	TAC	TTT	GAC	432
Thr	Ala	Ile	Tyr	Tyr	Cys	Ala	Arg	Asn	Arg	Tyr	Glu	Ser	Tyr	Phe	Asp	
	130					135					140					
TAC	TGG	GGC	CAA	GGG	ACC	ACG	GTC	ACC	GTC	TCC	TCA	GGT	GGA	GGC	GGT	480
Tyr	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	
145					150					155					160	
TCA	GGC	GGA	GGT	GGC	TCT	GGC	GGT	GGC	GGA	TCG	GAC	ATC	GAG	CTC	ACT	528
Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Asp	Ile	Glu	Leu	Thr	
				165					170					175		
CAG	TCT	CCA	CTC	TCC	CTG	CCT	GTC	AGT	CTT	GGA	GAT	CAG	GCC	TCC	ATC	576
Gln	Ser	Pro	Leu	Ser	Leu	Pro	Val	Ser	Leu	Gly	Asp	Gln	Ala	Ser	Ile	
			180					185					190			
TCT	TGC	AGA	TCT	AGT	CAG	AAC	CTT	GTA	CAC	AGT	AAT	GGA	AAT	ACC	TAT	624
Ser	Cys	Arg	Ser	Ser	Gln	Asn	Leu	Val	His	Ser	Asn	Gly	Asn	Thr	Tyr	
			195				200					205				
TTA	CAT	TGG	TAC	CTG	CAG	AAG	CCA	GGC	CAG	TCT	CCA	AAT	CTC	CTG	ATC	672
Leu	His	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Asn	Leu	Leu	Ile	
	210					215					220					
TAC	AAA	GTT	TCC	AAC	CGA	TTT	TCT	GGG	GTC	CCA	GAC	AGG	TTC	AGT	GGC	720
Tyr	Lys	Val	Ser	Asn	Arg	Phe	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	
225					230					235					240	
AGT	GGA	TCA	GGG	ACA	GAA	TTC	ACA	CTC	AAG	ATC	AGC	AGA	GTG	GAG	GCT	768
Ser	Gly	Ser	Gly	Thr	Glu	Phe	Thr	Leu	Lys	Ile	Ser	Arg	Val	Glu	Ala	
				245					250					255		
GAG	GAT	CTG	GGA	GTT	TAT	TTC	TGC	TCT	CAA	AGT	ACA	CAT	GTT	CCG	CTC	816
Glu	Asp	Leu	Gly	Val	Tyr	Phe	Cys	Ser	Gln	Ser	Thr	His	Val	Pro	Leu	
			260					265					270			
ACG	TTC	GGT	GCT	GGG	ACC	AAG	GTG	GAG	CTG	AAA	CGG	GCG	GCC	GCA	GGT	864
Thr	Phe	Gly	Ala	Gly	Thr	Lys	Val	Glu	Leu	Lys	Arg	Ala	Ala	Ala	Gly	
		275					280					285				
GCG	CCG	GTG	CCG	TAT	CCG	GAT	CCG	CTG	GAA	CCG	CGT	GCC	GCA	TAG		909
Ala	Pro	Val	Pro	Tyr	Pro	Asp	Pro	Leu	Glu	Pro	Arg	Ala	Ala			
	290					295					300					

<210> 42
 <211> 918
 <212> DNA
 <213> mouse

<400> 42
 ATG ACC ATG ATT ACG CCA AGC TTT GGA GCC TTT TTT TTG GAG ATT TTC 48
 Met Thr Met Ile Thr Pro Ser Phe Gly Ala Phe Phe Leu Glu Ile Phe
 5 10 15

AAC	GTG	AAA	AAA	TTA	TTA	TTC	GCA	ATT	CCT	TTA	GTT	GTT	CCT	TTC	TAT	96
Asn	Val	Lys	Lys	Leu	Leu	Phe	Ala	Ile	Pro	Leu	Val	Val	Pro	Phe	Tyr	
		20						25					30			
GCG	GCC	CAG	CCG	GCC	ATG	GCC	CAG	GTG	AAG	CTG	CAG	CAG	TCT	GGA	CCT	144
Ala	Ala	Gln	Pro	Ala	Met	Ala	Gln	Val	Lys	Leu	Gln	Gln	Ser	Gly	Pro	
		35					40					45				
GGC	CTA	GTG	CAG	CCC	TCA	CAG	AGC	CTG	TCC	TTC	ATC	TGC	ACA	GTC	TCT	192
Gly	Leu	Val	Gln	Pro	Ser	Gln	Ser	Leu	Ser	Phe	Ile	Cys	Thr	Val	Ser	
	50					55				60						
GGT	TTC	TCA	TTA	ACT	AGT	CAT	GGT	GTA	CAC	TGG	GTT	CGC	CAG	TCT	CCA	240
Gly	Phe	Ser	Leu	Thr	Ser	His	Gly	Val	His	Trp	Val	Arg	Gln	Ser	Pro	
	65				70				75					80		
GGA	AAG	GGT	CTG	GAG	TGG	CTG	GGA	GTG	ATA	TGG	GGT	GCT	GGA	AGG	ACA	288
Gly	Lys	Gly	Leu	Glu	Trp	Leu	Gly	Val	Ile	Trp	Gly	Ala	Gly	Arg	Thr	
				85				90					95			
GAC	TAT	AAT	GCA	GCT	TTC	ATA	TCC	AGA	CTG	AGC	ATC	AGC	AGG	GAC	ATT	336
Asp	Tyr	Asn	Ala	Ala	Phe	Ile	Ser	Arg	Leu	Ser	Ile	Ser	Arg	Asp	Ile	
		100						105					110			
TCC	AAG	AGC	CAA	GTT	TTC	TTT	AAG	ATG	AAC	AGT	CTG	CAA	GTT	GAT	GAC	384
Ser	Lys	Ser	Gln	Val	Phe	Phe	Lys	Met	Asn	Ser	Leu	Gln	Val	Asp	Asp	
		115					120					125				
ACA	GCC	ATA	TAT	TAC	TGT	GCC	AGA	AAT	AGG	TAC	GAG	AGC	TAC	TTT	GAC	432
Thr	Ala	Ile	Tyr	Tyr	Cys	Ala	Arg	Asn	Arg	Tyr	Glu	Ser	Tyr	Phe	Asp	
	130					135					140					
TAC	TGG	GGC	CAA	GGG	ACC	ACG	GTC	ACC	GTC	TCC	TCA	GGT	GGA	GGC	GGT	480
Tyr	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser	Gly	Gly	Gly	Gly	
	145				150					155					160	
TCA	GGC	GGA	GGT	GGC	TCT	GGC	GGT	GGC	GGA	TCG	GAC	ATC	GAG	CTC	ACT	528
Ser	Gly	Gly	Gly	Gly	Ser	Gly	Gly	Gly	Gly	Ser	Asp	Ile	Glu	Leu	Thr	
				165				170					175			
CAG	TCT	CCA	CTC	TCC	CTG	CCT	GTC	AGT	CTT	GGA	GAT	CAG	GCC	TCC	ATC	576
Gln	Ser	Pro	Leu	Ser	Leu	Pro	Val	Ser	Leu	Gly	Asp	Gln	Ala	Ser	Ile	
			180					185					190			
TCT	TGC	AGA	TCT	AGT	CAG	AAC	CTT	GTA	CAC	AGT	AAT	GGA	AAT	ACC	TAT	624
Ser	Cys	Arg	Ser	Ser	Gln	Asn	Leu	Val	His	Ser	Asn	Gly	Asn	Thr	Tyr	
		195					200					205				
TTA	CAT	TGG	TAC	CTG	CAG	AAG	CCA	GGC	CAG	TCT	CCA	AAT	CTC	CTG	ATC	672
Leu	His	Trp	Tyr	Leu	Gln	Lys	Pro	Gly	Gln	Ser	Pro	Asn	Leu	Leu	Ile	
	210					215					220					
TAC	AAA	GTT	TCC	AAC	CGA	TTT	TCT	GGG	GTC	CCA	GAC	AGG	TTC	AGT	GGC	720
Tyr	Lys	Val	Ser	Asn	Arg	Phe	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	
	225				230					235					240	
AGT	GGA	TCA	GGG	ACA	GAA	TTC	ACA	CTC	AAG	ATC	AGC	AGA	GTG	GAG	GCT	768
Ser	Gly	Ser	Gly	Thr	Glu	Phe	Thr	Leu	Lys	Ile	Ser	Arg	Val	Glu	Ala	
				245					250					255		
GAG	GAT	CTG	GGA	GTT	TAT	TTC	TGC	TCT	CAA	AGT	ACA	CAT	GTT	CCG	CTC	816
Glu	Asp	Leu	Gly	Val	Tyr	Phe	Cys	Ser	Gln	Ser	Thr	His	Val	Pro	Leu	
		260					265						270			
ACG	TTC	GGT	GCT	GGG	ACC	AAG	GTG	GAG	CTG	AAA	CGG	GCG	GCC	GCA	GGT	864

Thr	Phe	Gly	Ala	Gly	Thr	Lys	Val	Glu	Leu	Lys	Arg	Ala	Ala	Ala	Gly	
						275					280				285	
GCG	CCG	GTG	CCG	TAT	CCG	GAT	CCG	CTG	GAA	CCG	CGT	GCC	GCA	AAG		909
Ala	Pro	Val	Pro	Tyr	Pro	Asp	Pro	Leu	Glu	Pro	Arg	Ala	Ala	Lys		
	290					295					300					
AAG	AAG	TAG														918
Lys	Lys															
	305															

<210> 43
 <211> 5
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Amino acid sequence of heavy chain CDR-1

<400> 43
 Ser His Gly Val His

<210> 44
 <211> 16
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Amino acid sequence of heavy chain CDR-2

<400> 44
 Val Ile Trp Gly Ala Gly Arg Thr Asp Tyr Asn Ala Ala Phe Ile Ser
 1 5 10 15

<210> 45
 <211> 9
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Amino acid sequence of heavy chain CDR-3

<400> 45
 Asn Arg Tyr Glu Ser Tyr Phe Asp Tyr

<210> 46
 <211> 16
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Amino acid sequence of light chain CDR-1

<400> 46
 Arg Ser Ser Gln Asn Leu Val His Ser Asn Gly Asn Thr Tyr Leu His

1

5

10

15

<210> 47
<211> 13
<212> PRT
<213> Artificial Sequence
<220>
<223> Amino acid sequence of light chain CDR-2

<400> 47
Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe

<210> 48
<211> 9
<212> PRT
<213> Artificial Sequence
<220>
<223> Amino acid sequence of light chain CDR-3

<400> 48
Ser Gln Ser Thr His Val Pro Leu Thr